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PATENT ABSTRACTS OF JAPAN

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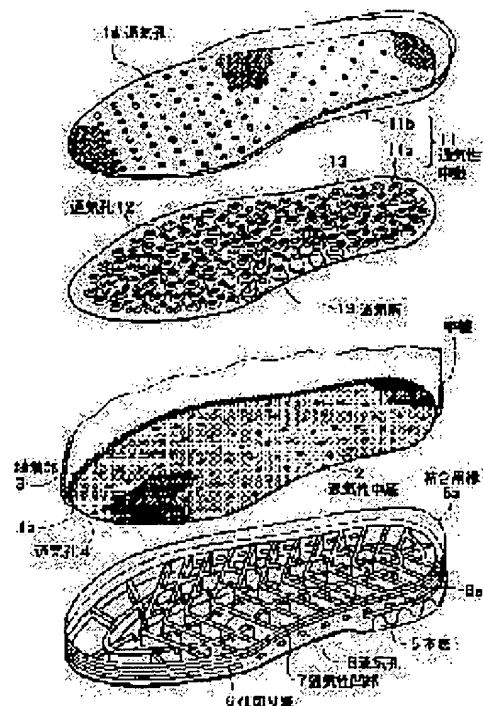
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 (22)Date of filing : 03.07.1996 (72)Inventor : AOYAMA YASUMASA

(54) STRUCTURE OF SOLE OF SHOE

(57)Abstract:

PROBLEM TO BE SOLVED: To prevent a foot from stinking by a structure wherein an open recessed part with an opened top face is formed in a main sole and a vent hole is provided on the side face part of the main sole to communicate with the outside, and the inside of a shoe is opened through a gas-permeable inner sole covered on the open recessed part.

SOLUTION: An open recessed part 7 which is divided by partition walls 6 and is opened to the top face and is mutually freely gas-permeably communicated with each other is formed in a main sole 5 molded with a material such as a rubber and this open recessed part 7 is communicated with the outside with a plurality of vent holes 8 provided on the side face part of the main sole. An edge 5a for bonding projected upward around the main sole 5 is bonded with the leather-covered lower peripheral edge part 1a under a condition where a gas-permeable inner sole 2 is covered on the open recessed part 7 of the main sole 5. As a gas-permeable shoe soaking 11 spread on the inner sole 2, a cushion sheet 11a molded with an elastic sheet material and a perforated sheet 11b molded with a sheet material such as urethane are combined. The cushion sheet 11a forms a number of vent holes 12 and a number of vent cylinders 13 into projected shapes and the perforated sheet 11b is provided with a number of vent holes 14.



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CLAIMS

[Claim(s)]

[Claim 1] The periphery of a permeability insole which consists of a non-elasticity web material is sewn on the bottom periphery of an upper. In ****, it is divided with a bridgewall, open a top face wide, and the open crevice made to open for free passage mutually free [aeration] is formed. Sole structure which the external world is made open for free passage by two or more air holes which established this open crevice in the **** lateral portion, carries out this [of said insole /-ed] on an open crevice, and is characterized by having combined the circumference of **** with the bottom periphery section of an upper, and constituting air from an air hole free [receipts and payments] within and without shoes through an open crevice.

[Claim 2] Sole structure according to claim 1 characterized by having sewn the edge for association, and the bottom periphery section of an upper on, and combining the circumference of **** with the bottom periphery section of an upper after sizing the edge for association which protruded on the circumference of **** upward on the bottom periphery section of an upper.

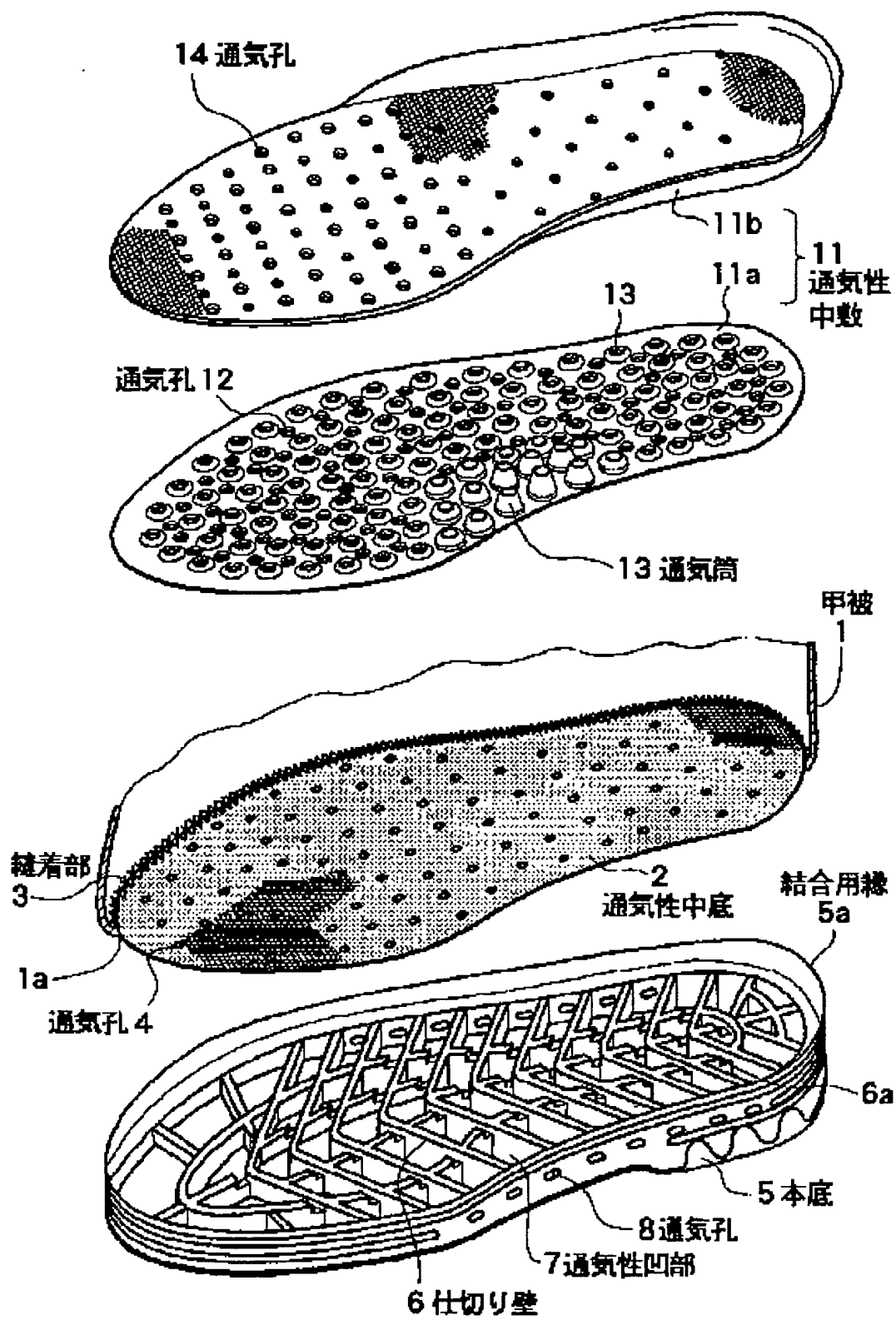
[Claim 3] Sole structure according to claim 1 characterized by having prepared slitting for aeration in the bridgewall top face, and making aeration free between adjacent open crevices.

[Claim 4] Sole structure according to claim 1 characterized by ****(ing) a permeability insole on an insole.

[Claim 5] A permeability insole comes to combine the permeability filler sheet cast by the elastic web material, and the permeability punching sheet cast by web materials, such as urethane. A permeability filler sheet The air hole of a large number drilled in the sheet surface, and the vent sleeve of a large number which were made by the sheet surface in the shape of upheaval, and reduced the diameter of upper limit opening to the inner sense, It is the sole structure according to claim 4 which has the vent sleeve which changed height corresponding to the hollow of the arch-of-foot section of the sole, and is characterized by a permeability punching sheet having the air hole of a large number drilled in the sheet surface.

[Claim 6] Sole structure according to claim 1 characterized by preparing a weep hole in the bridgewall lower part of the open crevice corresponding to an air hole within ****.

[Translation done.]



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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention relates to the sole structure of circulating air within and without shoes and preventing *****.

[0002]

[Description of the Prior Art] Much proposals are made as shoes which air is circulated within and without shoes and prevent ***** conventionally. And there is a thing of a configuration of having an air pump, an air valve, etc., carrying out press actuation of the air pump by the sole as sole structure which circulates the air to shoes inside and outside positively, and sending the air besides shoes into the interior of shoes.

[0003]

[Problem(s) to be Solved by the Invention] By movement intense in the case of shoes equipped with the air pump, the air valve, etc., an air pump, an air valve, etc. are obliged to the actuation under a severe condition, and tend to break down so that it may describe above, and it may be able to stop by the way, being able to demonstrate the function continued and stabilized at the long period of time. Moreover, while components mark increase in incorporating functional parts, such as an air pump and an air valve, in shoes, a special routing increases and the manufacturing cost of shoes becomes high.

[0004]

[Means for Solving the Problem] In order to solve the above-mentioned technical problem, this invention sews on the bottom periphery of an upper the periphery of a permeability insole which consists of a non-elasticity web material. In ****, it is divided with a bridgewall, open a top face wide, form the open crevice made to open for free passage mutually free [aeration], the external world is made open for free passage by two or more air holes which established this open crevice in the **** lateral portion, and this [of said insole /-ed] is carried out on an open crevice, and suppose that the circumference of **** was combined with the bottom periphery section of an upper.

[0005] Thus, by having adopted the configuration which combines the circumference of **** with the bottom periphery section of an upper, after sewing a permeability insole on the bottom periphery of an upper, air is made to go within and without shoes in and out freely through the air hole and the open crevice which were established in the **** lateral portion, ***** is prevented, and there is also no change of the function continued and stabilized at the long period of time, and there is no process special as a shoemaking process.

[0006]

[Embodiment of the Invention] The sole structure of this invention sews on the bottom periphery of an upper the periphery of a permeability insole which consists of a non-elasticity web material. In ****, it is divided with a bridgewall, open wide on the top face, and the open crevice made to open for free passage mutually free [aeration] is formed. The external world is made open for free passage by two or more air holes which established this open crevice in the **** lateral portion, the edge for association which carried out this [of said insole /-ed], and protruded upward on the open crevice at the

circumference of **** is combined with the bottom periphery section of an upper, and receipts and payments of air are enabled within and without shoes through an air hole.

[0007] and the joint relation between the edge for association of the circumference of ****, and the bottom periphery section of an upper -- a ***** sake -- shoemaking -- public funds -- after sizing the edge for association of the circumference of **** on the bottom periphery section of an upper using a mold, it is good to sew both on.

[0008] Moreover, in order to secure the permeability between adjacent open crevices, it is good to prepare slitting for aeration in a bridgewall top face.

[0009] Moreover, in order to make it the sole not hit an insole directly, to improve, to wear the fit nature to the sole and to double a feeling with liking of a wearer, it is effective on an insole to **** a permeability insole. this permeability insole -- **, when raising the fit nature to the arch-of-foot section which carries out and changes delicately with the sole, especially wearers The filler sheet which cast the permeability insole by the elastic web material, and the punching sheet cast by web materials, such as urethane, combination and a filler sheet Many air holes and the vent sleeve of a large number which reduced the diameter of upper limit opening to the sheet surface at the inner sense are made in the shape of upheaval, it considers as the configuration which changed the height of a vent sleeve corresponding to the hollow of the arch-of-foot section of the sole, and a punching sheet is good to consider as the configuration which drilled many air holes.

[0010] Furthermore, it is desirable to prepare a weep hole in the lower part of a bridgewall into which the open crevice corresponding to an air hole is divided by the air hole prepared in the **** lateral portion, in order to bring together the storm sewage which trespassed upon the open crevice from the air hole in one place since the open crevice in **** is open for free passage in the external world, and to sample.

[0011]

[Example] If an example is explained with reference to a drawing, in drawing 1, 1 is an upper, 2 is the permeability insole carried out attaching-by-sewing 3 at bottom periphery of upper 1a, and this permeability insole 2 will consist of web materials, such as a soft dishcloth of non-elasticity, and will drill the air hole 4 in the whole surface.

[0012] 5 is **** cast by materials, such as rubber, it is divided with a bridgewall 6 in this **** 5, and it is wide opened on the top face, forms the open crevice 7 made to open for free passage mutually free [aeration], and is making the external world open for free passage by two or more air holes 8 which established this open crevice 7 in the **** lateral portion. Moreover, although permeability is obtained between the open crevices 7 which adjoin each other throughout a period of bridgewall 6 for the configuration which opened the top face wide so that the specific open crevice 7 may not be filled with air although divided with the bridgewall 6, the open crevice 7 has prepared slitting 6a for aeration in bridgewall 6 top face in the example, in order to secure smoother permeability between the open crevices 7. You may make it a shallow concave convex without replacing with this slitting 6a and making bridgewall 6 top face into a single flat surface. In addition, as a fundamental gestalt of the open crevice 7 formed in **** 5, it is the same as what is conventionally formed in the shape of **** 5 inside mechanism omission for saving of materials, or lightweight-izing.

[0013] Where this [of said permeability insole 2 /-ed] is carried out on the open crevice 7 in **** 5, marginal 5a for association which protruded on the circumference of **** 5 upward is combined with bottom periphery section of upper 1a. this joint relation -- that of ***** -- shoemaking -- public funds -- after making marginal 5a for association bottom periphery section of upper 1a sizing 9 using a mold, this sizing section is carried out attaching-by-sewing 10.

[0014] 11 is the permeability insole ****(ed) on an insole 2, and combine up filler sheet 11a cast by the elastic web material, and punching sheet 11b cast by web materials, such as urethane, as this insole 11, and it is. Filler sheet 11a makes many air holes 12 and the vent sleeve 13 of a large number which reduced the diameter of upper limit opening to the sheet surface at the inner sense in the shape of upheaval, and considers as the configuration which changed the height of a vent sleeve 13 corresponding to the hollow of the arch-of-foot section of the sole, and punching sheet 11b is taken as the configuration

which drilled many air holes 14. And if filler sheet 11a is fastened between said permeability insole 2 and punching sheet 11b, forms a clearance among both and is pressed by the sole, it will build the flow of the air to which a vent sleeve 13 deforms flexibly, demonstrates a pump action by filler sheet 11a every place, and passes through a sheet, i.e., the flow of the air which goes within and without shoes in and out.

[0015] In addition, punching sheet 11b of an example makes the front face a cloth flare, by mold push, attaches an inclination upward for the edge from a heel loosely up to near the arch-of-foot section, and makes the heel the shape of an inside hollow.

[0016] 15 is the weep hole prepared in the bridgewall lower part into which the open crevice 7 corresponding to the air hole 8 prepared in the **** lateral portion is divided, and is for bringing together the storm sewage which invaded in the open crevice 7 from the air hole 8 in one place, and sampling it, and it makes a heel flow down water and he is trying to sample it in the example, where it made it open for free passage [to the direction of a heel] from the direction of the tiptoe section, it made the tiptoe section high and shoes are leaned.

[0017]

[Effect of the Invention] This invention is carried out with a gestalt which was explained above, and does so effectiveness which is indicated below.

[0018] The open crevice of the top-face disconnection formed in **** is mutually open for free passage free [aeration]. Moreover, by having been open for free passage in the external world through the air hole prepared in the **** lateral portion, and having adopted the configuration wide opened extensively inside shoes through the permeability insole by which this [-ed] was carried out on this open crevice, even if shoes are under what kind of wear condition, air goes within and without shoes in and out freely, and **** of a guide peg can prevent appropriately. Moreover, in order to make the open crevice formed in **** open for free passage mutually free [aeration], it can carry out by the easy amelioration which prepares slitting for aeration in the bridgewall top face of the open crevice conventionally formed in the shape of **** inside mechanism omission for saving of materials, or lightweight-izing.

[0019] Moreover, since the circumference of **** is combined with the bottom periphery section of an upper after sewing a permeability insole on the bottom periphery of an upper, association of an upper and **** becomes what followed the conventional shoemaking process, and it is good. [of workability]

[0020] Moreover, since association with the edge for association of the circumference of **** and the bottom periphery section of an upper is based on sizing and attaching by sewing, association becomes what ****(ed), does not have qualitative dispersion, either, and is suitable for mass production method.

[0021] Moreover, the ** to which the sole will not hit an insole directly if a permeability insole is **** (ed) on an insole, The permeability filler sheet which realized fit nature to the sole which is hardly different from the shoes of general structure, and was moreover cast by the elastic web material as this permeability insole, What combined the punching sheet cast by web materials, such as urethane Even if a filler sheet is fastened between a permeability insole and a punching sheet, it deforms flexibly by the press by the sole, it demonstrates a pump action by sheet every place, and it makes more positive flow of the air over the inside and outside of shoes and it is the shoes of the same size If the filler sheet [some kinds (about three kinds)] classified by the height of the vent-sleeve group corresponding to the hollow of the arch-of-foot section of the sole is prepared Stimulative [from which there are a wearer's sole, especially individual difference, and hollow condition differs delicately / the fit nature to the arch-of-foot section or stimulative] can be worn by replacing only a filler sheet with alternatively, and a feeling can be doubled with liking of a wearer.

[0022] Furthermore, when you make it the configuration which prepared the weep hole in a part of wall lower parts of the bridgewall in ****, even if storm sewage etc. trespasses upon an open crevice from the air hole prepared in the **** lateral portion, it changes into the condition of having leaned shoes, is brought together in one place, can sample easily, and is convenient.

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TECHNICAL FIELD

[Field of the Invention] This invention relates to the sole structure of circulating air within and without shoes and preventing *****.

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TECHNICAL PROBLEM

[Problem(s) to be Solved by the Invention] By movement intense in the case of shoes equipped with the air pump, the air valve, etc., an air pump, an air valve, etc. are obliged to the actuation under a severe condition, and tend to break down so that it may describe above, and it may be able to stop by the way, being able to demonstrate the function continued and stabilized at the long period of time. Moreover, while components mark increase in incorporating functional parts, such as an air pump and an air valve, in shoes, a special routing increases and the manufacturing cost of shoes becomes high.

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MEANS

[Means for Solving the Problem] In order to solve the above-mentioned technical problem, this invention sews on the bottom periphery of an upper the periphery of a permeability insole which consists of a non-elasticity web material. In ****, it is divided with a bridgewall, open a top face wide, form the open crevice made to open for free passage mutually free [aeration], the external world is made open for free passage by two or more air holes which established this open crevice in the **** lateral portion, and this [of said insole /-ed] is carried out on an open crevice, and suppose that the circumference of **** was combined with the bottom periphery section of an upper.

[0005] Thus, by having adopted the configuration which combines the circumference of **** with the bottom periphery section of an upper, after sewing a permeability insole on the bottom periphery of an upper, air is made to go within and without shoes in and out freely through the air hole and the open crevice which were established in the **** lateral portion, **** is prevented, and there is also no change of the function continued and stabilized at the long period of time, and there is no process special as a shoemaking process.

[0006]

[Embodiment of the Invention] The sole structure of this invention sews on the bottom periphery of an upper the periphery of a permeability insole which consists of a non-elasticity web material. In ****, it is divided with a bridgewall, open wide on the top face, and the open crevice made to open for free passage mutually free [aeration] is formed. The external world is made open for free passage by two or more air holes which established this open crevice in the **** lateral portion, the edge for association which carried out this [of said insole /-ed], and protruded upward on the open crevice at the circumference of **** is combined with the bottom periphery section of an upper, and receipts and payments of air are enabled within and without shoes through an air hole.

[0007] and the joint relation between the edge for association of the circumference of ****, and the bottom periphery section of an upper -- a ***** sake -- shoemaking -- public funds -- after sizing the edge for association of the circumference of **** on the bottom periphery section of an upper using a mold, it is good to sew both on.

[0008] Moreover, in order to secure the permeability between adjacent open crevices, it is good to prepare slitting for aeration in a bridgewall top face.

[0009] Moreover, in order to make it the sole not hit an insole directly, to improve, to wear the fit nature to the sole and to double a feeling with liking of a wearer, it is effective on an insole to **** a permeability insole. this permeability insole -- **, when raising the fit nature to the arch-of-foot section which carries out and changes delicately with the sole, especially wearers The filler sheet which cast the permeability insole by the elastic web material, and the punching sheet cast by web materials, such as urethane, combination and a filler sheet Many air holes and the vent sleeve of a large number which reduced the diameter of upper limit opening to the sheet surface at the inner sense are made in the shape of upheaval, it considers as the configuration which changed the height of a vent sleeve corresponding to the hollow of the arch-of-foot section of the sole, and a punching sheet is good to consider as the configuration which drilled many air holes.

[0010] Furthermore, it is desirable to prepare a weep hole in the lower part of a bridgewall into which the open crevice corresponding to an air hole is divided by the air hole prepared in the **** lateral portion, in order to bring together the storm sewage which trespassed upon the open crevice from the air hole in one place since the open crevice in **** is open for free passage in the external world, and to sample.

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EXAMPLE

[Example] If an example is explained with reference to a drawing, in drawing 1, 1 is an upper, 2 is the permeability insole carried out attaching-by-sewing 3 at bottom periphery of upper 1a, and this permeability insole 2 will consist of web materials, such as a soft dishcloth of non-elasticity, and will drill the air hole 4 in the whole surface.

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[0013] Where this [of said permeability insole 2 /-ed] is carried out on the open crevice 7 in **** 5, marginal 5a for association which protruded on the circumference of **** 5 upward is combined with bottom periphery section of upper 1a. this joint relation -- that of ***** -- shoemaking -- public funds -- after making marginal 5a for association bottom periphery section of upper 1a sizing 9 using a mold, this sizing section is carried out attaching-by-sewing 10.

[0014] 11 is the permeability insole ****(ed) on an insole 2, and combine up filler sheet 11a cast by the elastic web material, and punching sheet 11b cast by web materials, such as urethane, as this insole 11, and it is. Filler sheet 11a makes many air holes 12 and the vent sleeve 13 of a large number which reduced the diameter of upper limit opening to the sheet surface at the inner sense in the shape of upheaval, and considers as the configuration which changed the height of a vent sleeve 13 corresponding to the hollow of the arch-of-foot section of the sole, and punching sheet 11b is taken as the configuration which drilled many air holes 14. And if filler sheet 11a is fastened between said permeability insole 2 and punching sheet 11b, forms a clearance among both and is pressed by the sole, it will build the flow of the air to which a vent sleeve 13 deforms flexibly, demonstrates a pump action by filler sheet 11a every place, and passes through a sheet, i.e., the flow of the air which goes within and without shoes in and out.

[0015] In addition, punching sheet 11b of an example makes the front face a cloth flare, by mold push, attaches an inclination upward for the edge from a heel loosely up to near the arch-of-foot section, and makes the heel the shape of an inside hollow.

[0016] 15 is the weep hole prepared in the bridgewall lower part into which the open crevice 7 corresponding to the air hole 8 prepared in the **** lateral portion is divided, and is for bringing together the storm sewage which invaded in the open crevice 7 from the air hole 8 in one place, and

sampling it, and it makes a heel flow down water and he is trying to sample it in the example, where it made it open for free passage [to the direction of a heel] from the direction of the tiptoe section, it made the tiptoe section high and shoes are leaned.

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DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] It is the sectional view of the shoes back which applied this invention.

[Drawing 2] It is the decomposition perspective view of the main configuration member of this invention.

[Drawing 3] It is the perspective view showing a part of important section of this invention in a cross section.

[Description of Notations]

1 Upper

1a Sponge bottom

2 Permeability Insole

3 Attaching by Sewing

4 Air Hole

5 ****

5a The edge for association

6 Bridgewall

6a Slitting for aeration

7 Open Crevice

8 Air Hole

9 Sizing Section

10 Attaching-by-Sewing Section

11 Permeability Insole

11a Filler sheet

11b Punching sheet

12 Air Hole

13 Attaching-by-Sewing Section

11 Permeability Insole

11a Filler sheet

11b Punching sheet

12 Air Hole

13 Vent Sleeve

14 Air Hole

13 Weep Hole

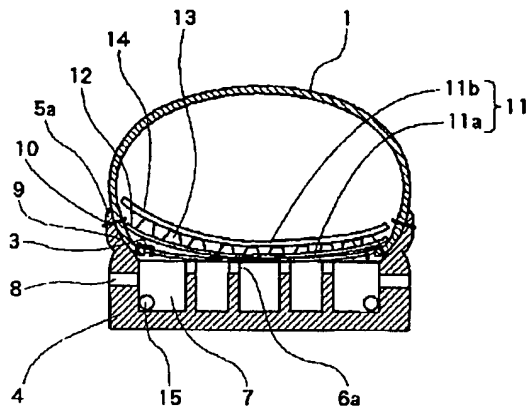
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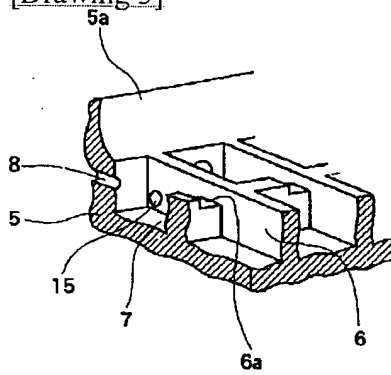
- ## DRAWINGS

Figure 1 shows four cross-sectional views of a shoe sole, labeled 11, 12, 13, and 14. Each view illustrates a different ventilation structure. View 11 shows a sole with ventilation holes (14) and a central ventilation zone (11a, 11b). View 12 shows a sole with ventilation holes (12) and a central ventilation zone (13). View 13 shows a sole with ventilation holes (13) and a central ventilation zone (13). View 14 shows a sole with ventilation holes (14) and a central ventilation zone (14).

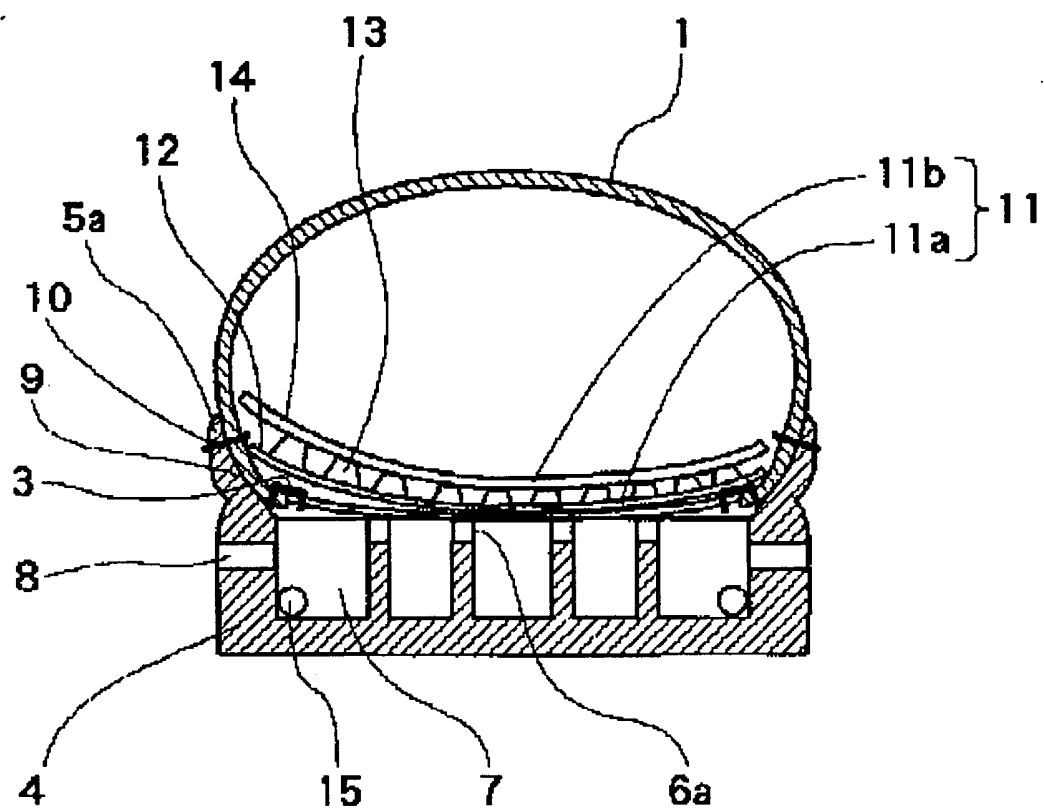
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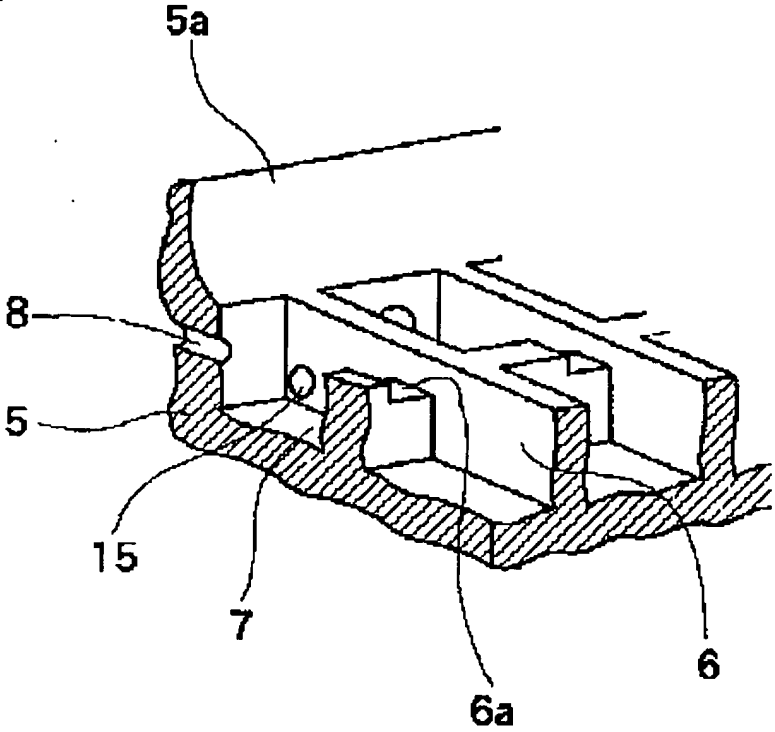


[Drawing 3]



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